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Pesticide Fact Sheet Number 31
Wood Preservatives

(U.S.) Environmental Protection Agency
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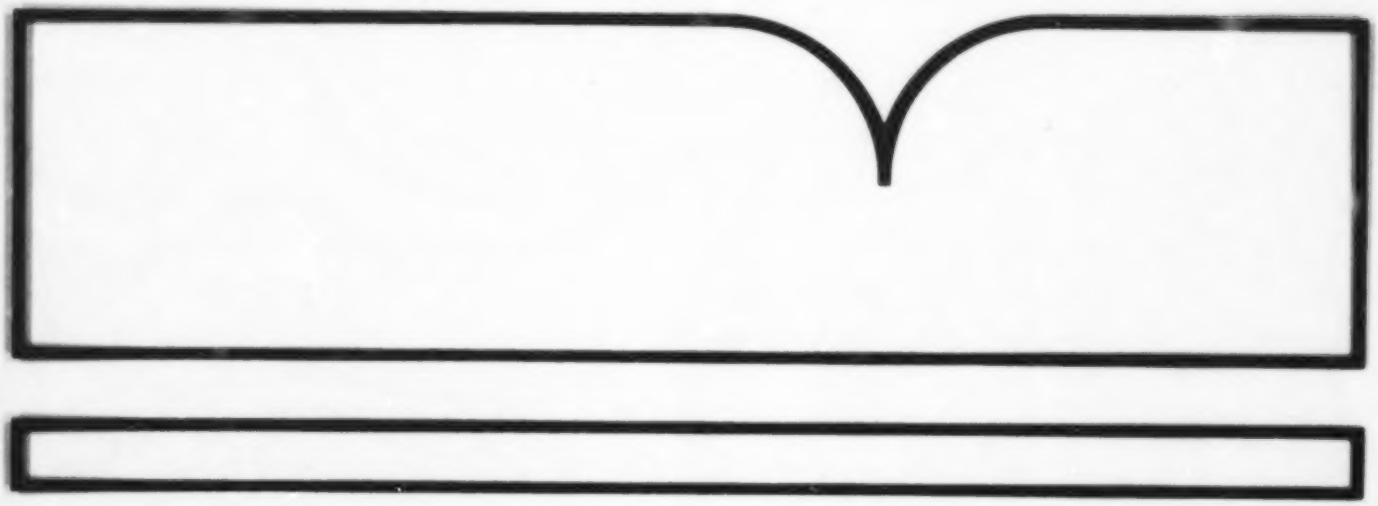

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Pesticide Fact Sheet

PB87-115630

Name of Chemical: WOOD PRESERVATIVES
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INTRODUCTION

The Environmental Protection Agency issued its final regulatory position July 11, 1984 on the use of creosote, inorganic arsenicals and pentachlorophenol (and its salts) as wood preserving pesticides. This regulatory action was taken under the authority of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). EPA's mandate under FIFRA is to prevent unreasonable adverse effects associated with exposure to these three wood preservatives and products treated with them, while still allowing the benefits of their use to continue. This fact sheet provides the details of the regulatory action and information on the health and safety concerns that prompted it.

USES

Wood preservatives protect wood from decay and increase the life expectancy of wood by a factor of five or more over that of untreated wood. Pressure treated wood containing the pesticides includes railroad ties, construction lumber, plywood, timbers, foundation materials, fence posts, and utility poles, as well as landscape materials. The preservatives also are sprayed or brushed on fence posts, lumber used around the home and yard such as wooden fences, decks, playground equipment, and lawn furniture, and for millwork, plywood and particleboard. In many instances, creosote, pentachlorophenol and inorganic arsenicals are used as alternatives to each other in treating wood.

In 1982, these three wood preservatives comprised roughly one-third of the 2.7 billion pounds of pesticides produced for both agricultural and industrial uses. Creosote, pentachlorophenol, and the inorganic arsenicals account for over 97% of the wood preservatives used in this country. Creosote, due to its density, accounts for most of the poundage used, but the inorganic arsenicals are found on more treated wood products. The major use of creosote is on railroad ties and utility poles. Pentachlorophenol is used primarily for poles, posts, fences, crossarms and logs for log homes. Sodium and potassium pentachlorophenate are used for preservation of freshly peeled poles or posts during air seasoning prior to pressure-treatment and for green lumber. Inorganic arsenicals are most commonly used on treated wood found outside the home (e.g.,decks). The inorganic arsenicals include chromated copper arsenate (CCA), ammoniacal copper arsenate (ACA) and fluor chrome arsenic phenol (FCAP).

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16. Abstract (Limit: 200 words)

This document contains up-to-date chemical information, including a summary of the Agency's regulatory position and rationale, on a specific pesticide or group of pesticides. A Fact Sheet is issued after one of the following actions has occurred.

1. Issuance or reissuance of a registration standard,
2. Issuance of each special review document,
3. Registration of a significantly changed use pattern,
4. Registration of a new chemical, or
5. An immediate need for information to resolve controversial issues relating to a specific chemical or use pattern.

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REGULATORY HISTORY

On October 18, 1978, the Environmental Protection Agency initiated a special review (Rebuttable Presumption Against Registration or RPAR) of the pesticidal uses of creosote, pentachlorophenol (and its salts), and the inorganic arsenicals based on health concerns. All three wood preservatives exceeded EPA's risk criteria for tumor production. In addition, creosote and the inorganic arsenicals were associated with genetic changes, and pentachlorophenol and the inorganic arsenicals were linked to defects in the offspring of laboratory animals.

In 1981, EPA proposed a set of regulatory actions for safe and proper commercial and domestic application of wood preservatives and recommended regulatory action for safe use and handling of treated wood by consumers. These proposals were reviewed by several government agencies and other interested parties, including industry and environmental groups.

The Agency held a public meeting on April 14, 1983, to give the public an opportunity to comment on a modified proposal to conclude the RPAR. Industry, environmental groups and other interested parties submitted comments as a result of that meeting.

In reaching the final regulatory position, the benefits of using wood preservatives and the availability and efficacy of alternatives (including other chemicals and non-wood products) were taken into account. The risks to applicators during the application process as well as the risks to the general public resulting from using, handling or disposing of the treated wood were examined.

In general, the risks to persons applying these chemicals are more significant than for persons who are only exposed to treated wood. Common uses of treated wood such as decks, lawn furniture or playground equipment do not pose high risks of adverse effects, and there are practical steps that can be taken to reduce exposure to already-treated wood. The consumer information materials developed in connection with this decision point out that the use of appropriate sealers will reduce dermal exposure or inhalation exposure from indoor uses of wood treated with pentachlorophenol or creosote.

ACTIONS

The Environmental Protection Agency has placed several restrictions on the application of the wood preservatives creosote, pentachlorophenol and its salts (including sodium pentachlorophenate) and the inorganic arsenicals. The actions are described below.

1. RESTRICTIONS ON WHO MAY APPLY WOOD PRESERVATIVES

All three chemicals are now classified for restricted use only by certified applicators (or someone under their direct supervision) except for the brush-on treatment of the inorganic arsenicals where use will be for commercial construction purposes only and not for household use. This action will reduce the general availability of wood preservatives to home and farm users, but an individual who chooses to use these products may do so by obtaining training and certification from the appropriate State agency. This provision is designed to ensure that restricted pesticides are properly applied by persons trained to safely handle these materials.

2. USE AND APPLICATION OF WOOD PRESERVATIVES: LABEL CHANGES

The following are the significant label changes that will be required:

The label must state: "Restricted Use Pesticide: For sale and use only by certified applicators or by persons under their direct supervision and only for those uses covered by the certified applicator's certification."

All pentachlorophenol products must include a warning that exposure to women during pregnancy should be avoided becauses pentachlorophenol has been shown to cause defects in the offspring of laboratory animals.

Protective clothing requirements will be specified. These will include use of impermeable gloves for applying the preservatives and in all situations where dermal contact is expected (e.g., handling freshly treated wood and manually opening cylinders to pressure treatment equipment). In certain situations such as spraying the chemicals and working around pressure treatment equipment, additional clothing is required. Such clothing would include overalls, jacket, boots, respirators, goggles and head covering. Applicators at commercial sites must leave their protective clothing at the plant. For home and farm use, non-disposable protective clothing should be laundered separately from other clothing.

All exposed arsenic treatment plant workers will be required to wear a respirator if the level of ambient arsenic is unknown or exceeds a Permissible Exposure Limit (PEL) of 10 ug/m^3 averaged over an 8 hour work day. This PEL is the same as the standard required by the Occupational Safety and Health Administration.

To reduce exposure to pentachlorophenol, closed systems for mixing and emptying powdered/prilled (granular) formulations will be required within three years. This phase-in period will

allow small wood treatment operations which often lack closed systems to comply without undue economic hardship. Closed systems for mixing powdered inorganic arsenicals will be immediately required because of an unacceptably high risk of tumor production.

Applicators may not eat, drink, or use tobacco products during the application process, which may expose them to the treatment formulations. They must wash thoroughly after skin contact and before eating, drinking, smoking or using restrooms.

Pentachlorophenol and creosote may not be applied in homes. Pentachlorophenol may not be applied to wood intended for use in interiors, except for millwork (with outdoor surfaces) and support structures which are in contact with the soil in barns, stables and similar sites and which are subject to decay or insect infestation. A sealer must be applied, however.

Creosote may not be applied to wood intended for use in interiors except for those support structures which are in contact with the soil in barns, stables and similar sites and which are subject to decay or insect infestation. A sealer must be applied.

The application of pentachlorophenol to logs for construction of log homes is prohibited.

If creosote or pentachlorophenol is applied to wood intended for use where it will frequently contact bare skin (e.g., on outdoor furniture), two coats of an appropriate sealer must be applied. Urethane, epoxy, and shellac are acceptable sealers for all creosote-treated wood. Urethane, shellac, latex epoxy enamel, and varnish are acceptable sealers for pentachlorophenol-treated wood. Arsenically-treated wood without sealers is safe for frequent contact because absorption through the skin is negligible.

Pentachlorophenol or creosote should not be used where there may be contamination of feed, food, drinking or irrigation water.

3. USE OF PRESSURE-TREATED WOOD: CONSUMER AWARENESS PROGRAM

The Consumer Awareness Program will require wood pressure-treaters to send Consumer Information Sheets to all places where treated wood is sold to instruct consumers about handling procedures, such as the use of protective gloves and coveralls and face masks when sawing treated wood products. The information sheet will recommend against the use of wood treated with any of the three preservatives in proximity to food, feed and public drinking water.

In interiors of farm buildings where domestic animals are unlikely to lick or bite the wood, pentachlorophenol and creosote may be used if two coats of an approved sealant are applied. In general, shavings, sawdust, and the treated wood itself should not

be used for bedding, brooding facilities, food containers, etc.

The information sheet will also recommend that consumers avoid frequent and prolonged skin contact with pentachlorophenol and creosote-treated wood such as treated lawn chairs and other outdoor furniture, unless two coats of an effective sealer have been applied. All treated wood must be visibly clean and free of surface residue for use on patios, decks and walkways.

The use of pentachlorophenol pressure-treated wood in a home is prohibited except for laminated beams or building structures in contact with the ground, provided that two coats of an appropriate sealer are applied. The use of creosote-treated wood inside the home is prohibited. Wood pressure-treated with arsenical preservatives may be used inside residences if dust is vacuumed from the wood surface.

Treated wood may be disposed of by ordinary trash collection or by burial. It should not be burned in a fireplace or open fire because of the toxic fumes or ashes that may be produced. (Commercial users such as railroad workers may use industrial incinerators to burn railroad ties--at these higher temperatures, toxic chemicals are broken down).

4. DIOXIN CONTENT OF PENTACHLOROPHENOL

Registrants of pentachlorophenol will be required to limit immediately the dioxin contaminant (hexachlorodibenzo-p-dioxin or HxCDD) in pentachlorophenol and its salts to 15 ppm and reduce that level to 1 ppm or less within 18 months. HxCDD causes tumors in rats and mice. The highly toxic dioxin TCDD has not been found in pentachlorophenol and no TCDD wil be allowed in the product.

5. DATA REQUIREMENTS

Manufacturers who market or intend to market wood preservatives must submit the following information:

For technical product registrations of pentachlorophenol and sodium pentachlorophenate, a description of the manufacturing process, including any changes to lower HxCDD; product identity; data on the analysis and certification of product ingredients; and information on the technical feasibility and costs of reducing HxCDD lower than the 1 ppm limit.

Epidemiology and exposure monitoring studies of creosote treatment plant workers so that, upon receipt of the data, the Agency can quantitatively estimate the potential risk of cancer.